DOCUMENT RESUME

ED 097 482 CE 002 249

AUTHOR	Vicino, Frank L.; And Others
TITLE	Field Test Report: Volume 1, All Units.
INSTITUTION	Mesa Public Schools, Ariz. Dept. of Research and Evaluation.
SPONS AGENCY	Arizona State Dept. of Education, Phoenix.
PUB DATE	Jun 74
NOTE	80p.
EDRS PRICE	MF-$0.75 HC-$4.20 PLUS POSTAGE
DESCRIPTORS	*Career Education; Data Collection; Educational Programs; *Field Studies; Performance; *Program Effectiveness; *Program Evaluation; School Demography; Student Attitudes; Teacher Attitudes; *Unit Plan
IDENTIFIERS	*Arizona; Field Tests

ABSTRACT

A field test was designed and conducted to examine the effectiveness of Arizona-designed career education units, particularly to examine the units' success in terms of their ability to affect positively students' cognitive, affective, and psychomotor behavior according to expressed performance and behavioral objectives. Fourteen career education units in nine projects were field tested. Data were gathered through UNIVAL, a panel review, and a community review, with approximately 5,000 students and 174 teachers included in the study. Of the students, 51 percent were female and 49 percent male; 61 percent were Anglo and 39 percent from minority groups. Of the teachers, 54 were male and 120 were female. Teacher attitude toward career education was fairly high and moderately positive toward the particular units. Student response to the units was positive, and learner performance was a high 80 percent. Measurements for each unit were calculated, based on teacher attitude, learner attitude, and learner performance. Student demographic data were subjected to an ethnic profile, and 14 cost factors analyzed for each unit. It was concluded that all 14 units in the field set were sufficiently satisfactory to be included in the 1974-75 statewide implementation program. (AG)

ED 097482

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

FIELD TEST REPORT
Vol. 1

ALL UNITS

Frank L. Vicino
James S. DeGracie
Chris Downs
Don Peterson

ONE OF A SERIES IN THE
ARIZONA STATEWIDE FIELD TEST 1973-74

CE 002 249

Conducted by
THE DEPARTMENT OF RESEARCH AND EVALUATION
Mesa Public Schools

Dr. George N. Smith
Superintendent

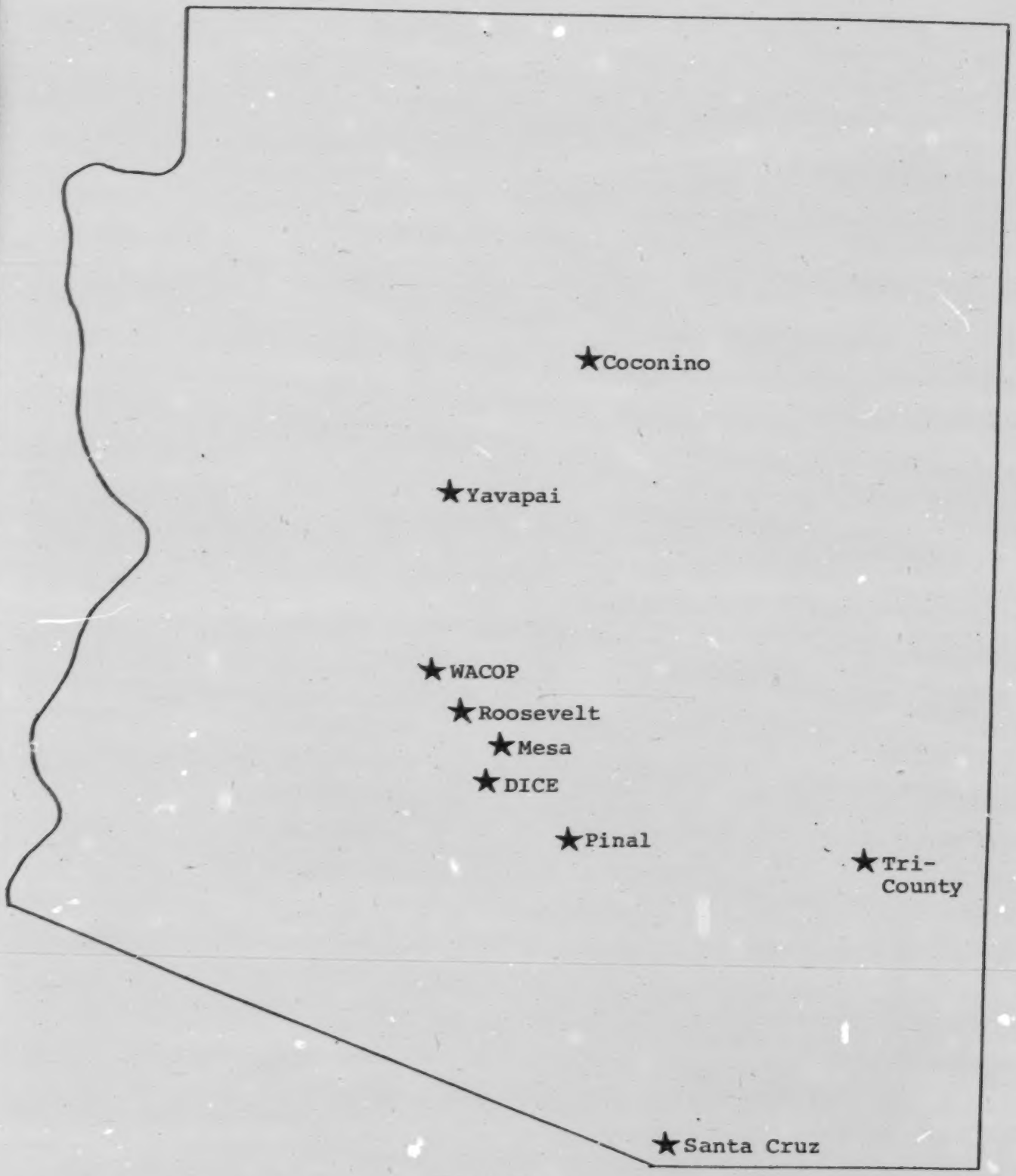
Dr. James K. Zaharis
Assistant Superintendent
Administrative Services

for
THE ARIZONA STATE DEPARTMENT OF EDUCATION

Dr. W.P. Shofstall, Superintendent
Arizona
Department of Education

Eugene L. Dorr
Associate Superintendent for
Career Education

A STATEWIDE UNIFIED
ASSESSMENT OF
CAREER EDUCATION UNITS



FOREWORD

So many have contributed major input to the field test processes of unit delivery, monitoring, instrument completion, panel reviews, and community reviews, that it is impossible to extract, note, and applaud individual efforts. I am sure that all those involved in this major team effort can see how much has been accomplished and have a positive view of its educational significance for the young people of Arizona. By documenting and analyzing the capabilities of the career education units tested, we all have contributed a positive boost to career education in school districts across the state.

The task of Field Test Manager has been simplified considerably by excellent staff support from the Mesa Public Schools Department of Research and Evaluation, responsive assistance from the State Department of Education, and the effective management shown by the field test coordinators from the respective field test projects.

Frank Leo Vicino

Frank Leo Vicino
Field Test Manager

JUNE, 1974

STATEWIDE FIELD TEST TASK FORCE

State Department of Education
Dr. Beverly Wheeler, Director, Research Coordinating Unit

Mesa Public Schools, Department of Research and Evaluation
Frank Leo Vicino, Director, Evaluation
Dr. James S. DeGracie, Director, Research
Beverly Potter, Curriculum Specialist
Debra Vild, Curriculum Specialist
Chris Downs, Research Associate
Don Peterson, Research Associate
Joseph Dempster, Research Associate

Site Field Test Coordinators
Tom Ryan, DICE
Margarete Wackerbarth, WACOP
Scott A. Mundell, Pinal
Martin W. Johnson, Tri-County
Jim Sanders, Coconino
Sylverean Lacey, Yavapai
Sue Jones, Santa Cruz
Bob Driscoll, Roosevelt
Beverly Potter, Mesa

Northern Arizona State University
Dr. Sam W. Bliss, Director
Educational Resources Management Center
Data Reduction

PREFACE

This is one of a series of field test reports on Arizona developed Career Education Curriculum Units. This report presents information concerning overall field test rationale and compilation of results for all field tested units. Other reports in this series contain unit specific field test material.

The work presented and reported herein was performed pursuant to contract from the Arizona State Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Arizona State Department of Education and no official endorsement by the Arizona State Department of Education should be inferred.

Objectives

In an effort to examine the effectiveness of Arizona designed career education units, a field test was designed and conducted. The field test was designed to examine the success of the units in terms of the unit's ability to affect positively, students' cognitive, affective and psychomotor behavior according to expressed performance and behavioral objectives.

The field test of the 14 career education curriculum units was conducted across the state in the following nine projects:

Coconino	Santa Cruz
DICE	Tri-County
Mesa	WACOP
Pinal	Yavapai
Roosevelt	

Approach

Basic unit data was collected by the use of UNIVAL, an instrument designed to garner student/teacher demographic information, student/teacher attitude, student unit performance, and unit cost. Another evaluation strategy called the "Panel Review" was used to gather in-depth unit refinement data. The data analyzed was from approximately 5,000 students and 174 teachers with the following general results.

Results

1. A total of approximately 5,000 learners were exposed to the units in the 9 participating projects. Fifty-one percent of the learners were female, and forty-nine percent male. Sixty-one percent of the learners were Anglo with thirty-nine percent from minority backgrounds.

2. Of the 174 teachers that presented the units 54 were male and 120 were female. The median years of experience was between 6-10 years and 45 had previously taught or developed a career education unit or program.
3. Teacher attitude toward career education was fairly high (3.91 on a scale where 5 was the highest possible response). Of the 348 possible responses, 78% were positive, 16% were of no opinion, and only 6% negative.
4. Teacher attitude toward the units--the teachers were moderately positive overall toward the units (3.51). Of the possible 522 responses, 67% were positive, 8% were of no opinion and 25% were negative.
5. Teachers that had a high positive attitude toward career education appeared also to favor the units ($r = .95$).
6. Learner attitude was positive toward all units across all projects (2.5 on a scale where 3 was the highest possible response). Sixty-three (63) percent of the 31,398 student responses were positive toward the unit, 25% no opinion, and 12% were negative toward the unit.
7. Learner performance on the unit--the overall percent of correct scores for all the units by all the projects was a high 80%. There was little variation

across projects.

8. Measures of unit effectiveness based on teacher attitude toward the unit, learner attitude toward the unit, and learner performance on criterion referenced lesson imbedded items were calculated for each unit. A ranking of the units in terms of unit effectiveness is presented in the report.
9. Student demographic data from the field test site were subjected to an ethnic profile. The units' effectiveness were re-ranked in relation to ethnic profile, so that districts with comparable ethnic profiles could use the information for implementation decisions.
10. Cost Analysis--fourteen cost factors were examined for each of the units. Two cost factors, teacher time and teacher planning time account for 90% of the cost of implementing the unit. The mean per pupil cost per project was $4.63.
11. Unit effectiveness rankings (with double weight) and cost rankings (with single weight) were combined in order to re-rank the units in terms of a cost effectiveness measure called unit value. Rankings for each unit for unit value are presented in the report.

Recommendations

1. All 14 units which were field tested are satisfactory enough to be included in the 1974-75 statewide implementation program.
2. It is recommended that an attachment containing suggestions for refinements, listed in the individual unit reports, be attached to the appropriate units for use by the implementation teachers.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
MANAGEMENT ROLE	3
SELECTING UNITS	3
INSTRUMENT DEVELOPMENT	4
COORDINATORS' WORKSHOP	4
WORKSHOP EVALUATION	5
TRIAL RUN	5
UNIT DISTRIBUTION	6
DATA COLLECTION AND ANALYSIS PLAN	11
UNIVAL	15
PANEL REVIEW	16
COMMUNITY REVIEW	16
FIELD TEST RESULTS	19
DESCRIPTION OF THE PARTICIPANTS	20
LEARNERS	21
TEACHERS	24
ATTITUDINAL DATA	26
TEACHER ATTITUDE	26
LEARNER ATTITUDE	31
LEARNER PERFORMANCE	36
UNIT ANALYSIS	39
UNIT EFFECTIVENESS	39
EFFECTIVENESS AND ETHNIC PROFILE	43
COST ANALYSIS	50
COST EFFECTIVENESS	52

	Page
SUMMARY	55
RECOMMENDATIONS	57
APPENDIX	58
I. FIELD TEST INSTRUMENT (UNIVAL)	59

INTRODUCTION

The major purpose of most innovative programs such as career education is to affect positively students' cognitive, affective, and psychomotor behavior according to expressed performance objectives.

The present field test was designed to determine the extent to which the performance objectives have been met by the Arizona-produced career education units. A secondary purpose of the field test was to provide data which could be used to refine the units and assist in determining implementation strategies. This information is intended for the curriculum staff at both the State Department and participating sites which ultimately will be chosen to implement the units.

Mesa, as Field Test Management site, was responsible for the development of the field test instrument package and the general monitoring/managing of the field test. The major responsibility of the Field Test Management site was to reduce and analyze all data received from those projects field testing career education units. Other responsibilities included the conduction of a workshop for the local field test coordinators, and on-site interviews with instructors, administrators, parents and community business people.

Sites across the state were chosen to field test selected units. The following projects were involved in that effort:

1. Coconino
2. DICE
3. Mesa
4. Pinal
5. Roosevelt
6. Santa Cruz
7. Tri-County
8. WACOP
9. Yavapai

The following list presents the titles and grade levels of the units tested in this field test.

UNIT	GRADE LEVEL	TITLE
107	2	What Do Workers Do?
111	6	Careers Calling
210	5	Developing Your Potential
211	6	Ideas: Things to Think About
310	5	The Future Me
311	6	Now and Then
605	K	Tools for Toil
610	5	Giving and Following Directions
611	6	Skill Schemes
709	4	Doing Your Thing
805	K	Reading, Writing and Numbering
811	6	Look to Learning
3026	10-12	Typing Correct Business Letters from Shorthand Dictation
3768	7-9	Instructional Unit in Composition of Business Letters

MESA'S MANAGEMENT ROLE IN THE FIELD TEST

In order to insure the efficient, timely and orderly flow of the field test a PERT network outlining activities and parallelisms was constructed and served as the basic management instrument for the conduct of the field test.

SELECTING THE UNITS, INSTRUMENTATION, AND THE DETERMINATION OF THE SAMPLING FRAMEWORK

The State Department (through the Research Coordinating Unit) utilized a unit selection procedure (criterion checklist) which resulted in the selection of 14 units.

In conjunction with representatives of the State Department, units were distributed to the nine sites using the following instruments to reflect proper sampling and to take into account the project's preference.

a. Field test site description

b. Project preference sheet

c. Random selection procedures (constrained by geographical distributions)

FIELD TEST INSTRUMENT DEVELOPMENT

Field test instruments were developed by Mesa's Department of Research and Evaluation, sending working copies to the State Department for review and critique. A Unit Evaluation instrument package (UNIVAL) was completed soliciting demographic, impact, cost and assessment data.

FIELD TEST COORDINATORS' WORKSHOP AND MANUAL DEVELOPMENT

On September 18 a Field Test Coordinators' Meeting was held. The agenda included the following topics and presenters:

AGENDA

Introduction	Why We're Here R.C.U. Role	Beverly Wheeler
Introduction	Field Test Coordinators	Beverly Wheeler
Introduction to Field Testing, Monitoring Site Role, Timelines, Trial Run of Field Test		Frank Vicino
Field Test Coordinators' Role and Responsibilities; Manual, Tracking and Administrative Cost Forms		Debra Vild Jim DeGracie Beverly Potter
UNIVAL Instrument		Debra Vild
Questions and Discussion		All

The major document used in the Field Test Coordinators' Workshop was the Mesa developed Field Test Coordinators' Manual. The workshop covered the various role demands of the field test, instrument usage, and instruction for in-servicing field test teachers at the various sites.

EVALUATION
OF
WORKSHOP

An instrument to evaluate the workshop was designed by Mesa' Department of Research and Evaluation and administered to the field test coordinators. The results of the evaluation were presented to the State Department in a previous report. To summarize the report:

...The workshop participants felt that they attained the major objectives of the workshop.

...The procedures used by the presenters assisted the participants in attaining the objectives.

...The objectives were important.

TRIAL RUN
FOR FIELD
TEST PROCEDURES

In an effort to increase the validity and reliability of the data collected during the field test, a piloting of

the field test procedures was designed and implemented. In this trial run, a fifth grade unit (Unit 610) was delivered in two classrooms at each of the nine sites. The Department of Research and Evaluation then sent monitors to each of the sites to uncover any problems and also to gain insights into the field test procedures. They interviewed the field test coordinators, teacher of the pilot unit and witnessed the unit delivery in a classroom at each project.

With minor revisions the field test procedures proved acceptable to all sites and the field test proceeded as scheduled.

UNIT

DISTRIBUTION

During the period from November 1973 to May 1974 the fourteen career education curriculum units were field tested. The following listing shows the number of classrooms and corresponding units tested in each project.

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Coconino	610	2
	3768	3
	3026	2
	805	3
	111	3
	311	3
	210	3
	605	3
	709	3
		Total = 25
DICE	3026	2
	111	1
	310	2
	107	1
		Total = 6
Mesa	610	2
	3768	3
	811	3
	111	3
	210	3
	611	3
	211	3
	107	3
	709	3
		Total = 26

STATEWIDE UNIT DISTRIBUTION

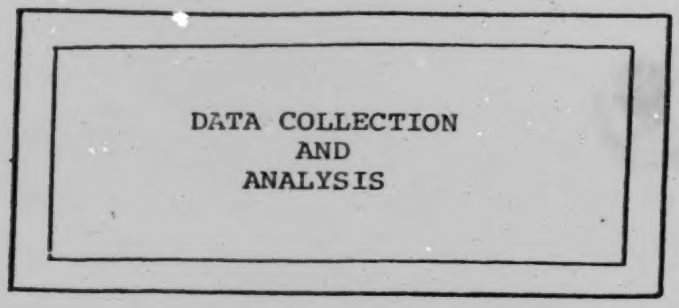
PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Tri-County	610	2
	811	3
	805	3
	111	3
	611	3
	107	3
	605	3
		Total = 20
WACOP	610	2
	3768	3
	811	3
	611	1
		Total = 9
Yavapai	610	2
	811	3
	805	4
	311	3
	310	4
	210	3
	611	4
	211	4
	107	5
		Total = 32

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Pinal	610	2
	3768	2
	3026	3
	111	3
	311	3
	310	3
	210	2
	211	2
	605	3
	709	3
		Total = 26
Roosevelt	610	2
	3768	3
	805	3
	310	3
	611	3
	211	3
	107	2
	709	3
		Total = 22

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Santa Cruz	610	2
	811	2
	805	2
	311	1
	310	1
		Total = 8



The field test is a large-scale multi-purpose use of the product, generating data to guide product installation and further refinements. The following list of objectives is presented as an indication of some of the major objectives guiding this field test:

1. To examine product performance under large-scale conditions.
2. To show under what conditions the product does or does not perform.
3. To establish whether a product works without the supervision of its developers.
4. To determine installation cost.
5. To determine amount of time necessary for the product to achieve its objectives.
6. To determine training requirements for school staff.
7. To determine whether product is worthy of further investment.
8. To provide product refinement data.
9. To facilitate eventual widespread acceptance of the product.

In an effort to answer as many of these outlined objectives as operationally and logistically possible we defined the audience and/or contributors to career education. Four major population categories were defined: Learners, Business Community, Parents, and, of course, Teachers (Fig.1).

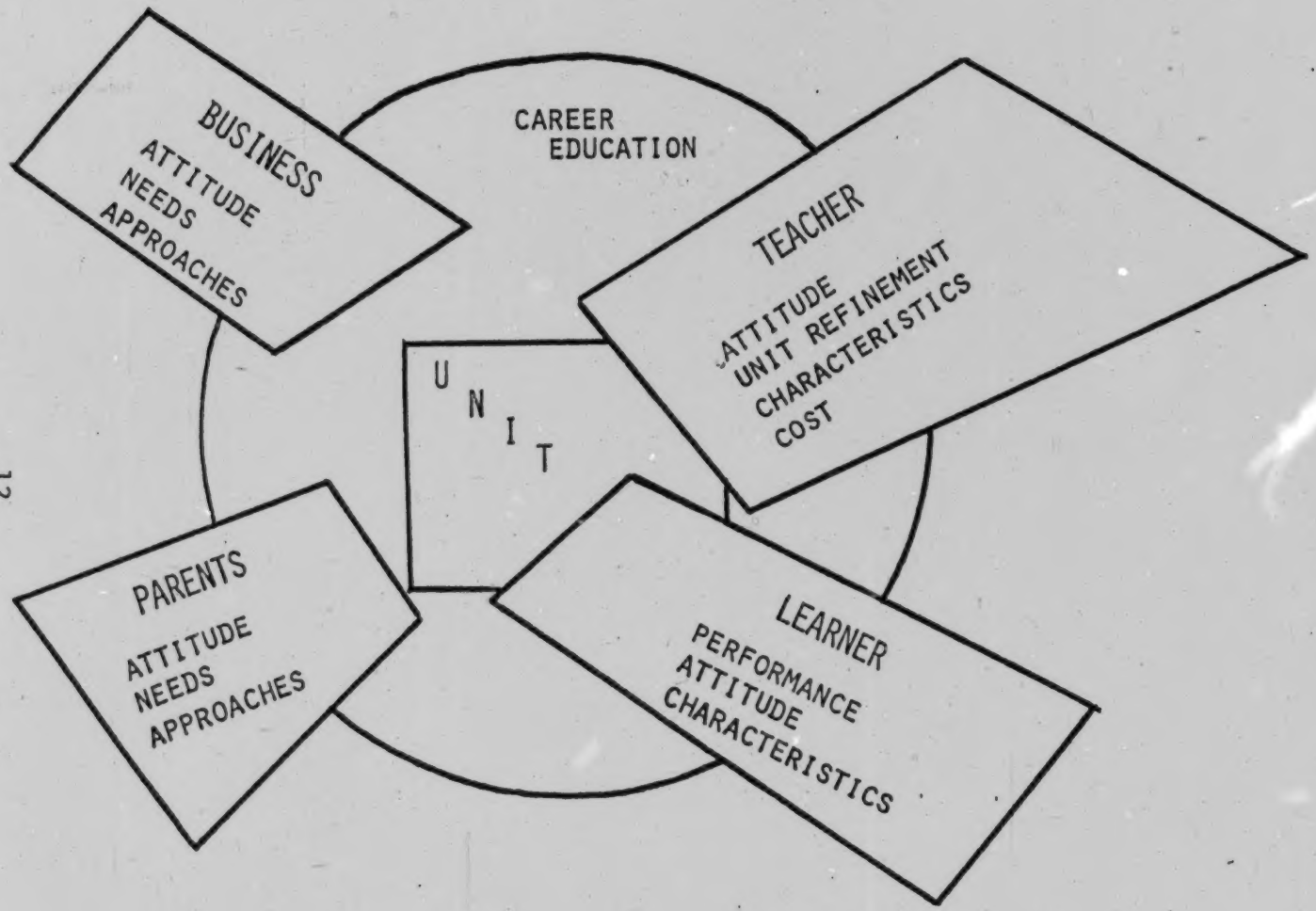


Fig. 1 CAREER EDUCATION CONTRIBUTORS

Career education, in order to be a viable and eventually a permanent entry into the education system, must solicit input from these populations.

From the learner, performance on the unit's objectives should be examined. In addition, it would be extremely important in order to determine placement of the unit, to examine the characteristics of the students in relation to the unit's success.

Learner attitude toward the unit, unfortunately rarely sought systematically by product developers, should be examined as early in development as possible. High student interest or opposition should serve as a cue to developers that the product has hit the mark or needs major revisional work.

At the classroom teacher's level is where acceptability, ease of use, curriculum conformance, vocabulary, and effectiveness with various kinds of students can be examined prior to implementation.

The following information includes the kinds of data the teacher can generate and supply concerning the unit's effectiveness.

1. Teacher attitude toward the unit
2. Teacher attitude toward career education
3. Unit refinement information--classroom teacher comments concerning unit activities, objectives, evaluation items, etc. If general feelings about the unit are shared consistently by many teachers this will lead to unit refinement.

4. Teacher characteristics--here the intent is to examine if there was any relationship between teacher characteristics, such as teacher experience, education, age, and success with career education units.

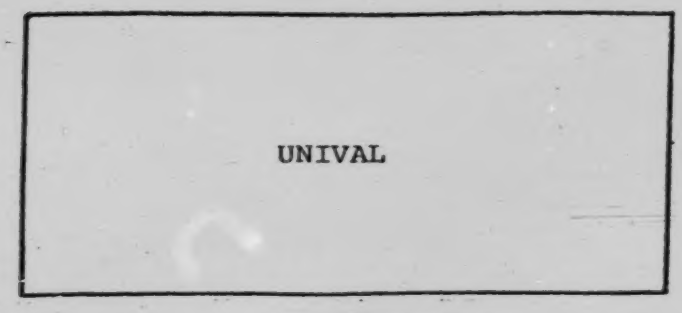
5. Cost data--the teacher will provide information concerning cost of materials, activities, and time to deliver unit.

The remaining two contributors and/or audiences of career education (the parents and business community), may not directly affect the unit but by examining and commenting on the elements of career education, the goals, the delivery strategies, or general concepts, they will affect the design of future units. Within the community surrounding the school, some groups may be influential in determining the fate of any new program. Interchange with representatives of such interest groups can assist in predicting community acceptance and in determining future program goals.

Individuals from the business and parental community would fall under this capacity. It was found, as an example, that parental reaction to a new product may arise rather slowly. It can however influence the maintenance and school use of the product and should be considered in program evaluation.

We choose to examine the attitude, needs and alternative approaches toward career education for both of these communities.

As a consequence of the above analysis, three major data gathering strategies were designed.



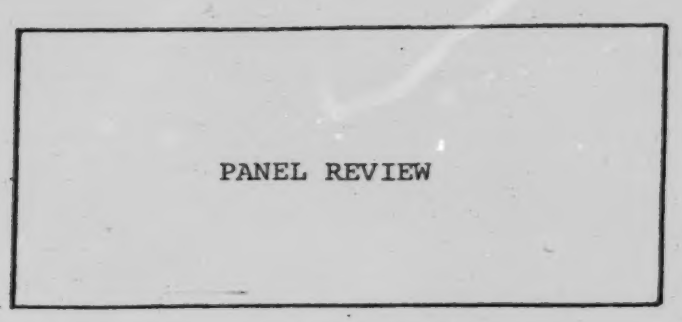
An instrument, (UNIVAL), which was included within the curriculum unit package was designed to assist in gathering the basic data concerning the unit and lessons directly.

The unit and the UNIVAL booklet containing the evaluation instrument for the unit was delivered by the field test coordinator to the classroom teacher followed by an in-service session on the use and completion of the UNIVAL.

The following data was collected within the UNIVAL:

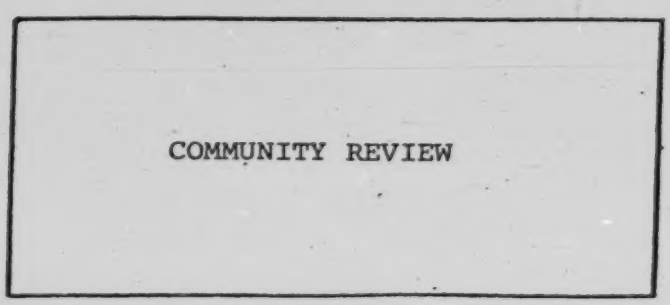
1. Learner Unit Performance (Lesson Imbedded Test Items)
2. Learner Attitude Toward Unit
3. Learner Characteristics
4. Teacher Attitude Toward Unit
5. Teacher Attitude Toward Career Education
6. Teacher Characteristics
7. Cost Information

UNIVAL data was collected from approximately 5,000 students and 175 teachers.



Another major data gathering strategy that was used was the panel review. In this the main objective was to secure more detailed unit refinement data.

The teachers having taught the unit were brought together for a structured group session and discussed the unit's strengths and weaknesses. It was anticipated that discussion with the teachers would stimulate a more in-depth analysis of the unit. Career education in general and its educational values were also discussed.



An ancillary technique was employed as our final data gathering strategy. The previous techniques were tied to the goals and objectives of the field test and directed toward the units. The Community Review techniques are not directly tied to the evaluation of the unit; however, the community, in this case business, parents, and teachers, will

be major users, acceptors, or detractors of subsequent programs, and therefore must be represented in program design. The community review was made up of a group of teachers, parents and business representatives along with an interviewer from the Mesa project. The meeting had three major parts to it. First the participants filled out a questionnaire concerning career education. This was followed by a group structured interview by a member of the Mesa R and E staff, and finally, a free discussion period. The results of the community review are presented in a separate report in this series (Vol. 16).

The following table presents an overall summary of various data collection strategies and techniques employed in the field test.

DATA COLLECTION STRATEGY

		UNIVAL	PANEL REVIEW	COMMUNITY REVIEW
LEARNER	PERFORMANCE	X		
	PERCEPTION (UNIT)	X		
	DEMOGRAPHICS	X		
TEACHER	PERCEPTION (UNIT)	X	X	
	PERCEPTION	X	X	X
	REFINEMENT DATA	X	X	
	DEMOGRAPHICS	X		
	COST DATA	X		
PARENTS	PERCEPTION			X
	NEEDS			X
	ALTERNATIVE APPROACHES			X
BUSINESS	PERCEPTION			X
	NEEDS			X
	ALTERNATIVE APPROACHES			X

FIELD TEST RESULTS

OVERALL UNIT REVIEW

This section of the report presents the overall data summary and analysis for the field test.

Significant summary statistics will be presented and discussed in the Field Test Results section of the report. Detailed statistical summaries for each unit are presented in separate reports. An outline of this section follows:

A. A description of the field test including demographic characteristics of both participating teachers and students.

B. Attitudinal data from both teachers and students concerning the units.

C. Learner performance data on the lesson specific items.

D. Unit analysis data.

E. Cost analysis data.

F. Cost effectiveness data.

DESCRIPTION OF THE PARTICIPANTS

The data in this report were obtained from the projects, teachers, and learners described in the following tables.

Table I presents the exact number of classrooms on which data were available in time for analysis. Originally it was anticipated that each unit would be presented in 15 classrooms throughout the state. As in any large-scale field test, however, the projects encountered the usual number of problems completing the units on time and other unforeseen events. The resulting number, however, were sufficient enough to form the basis for valid decisions concerning the units.

TABLE I

UNIT TITLES AND FIELD TEST CLASSROOMS

UNIT	TITLE	NUMBER OF CLASSROOMS
107	What Do Workers Do?	14
111	Careers Calling	13
210	Developing Your Potential	11
211	Ideas: Things to Think About	12
310	The Future Me	13
311	Now and Then	10

UNIT	TITLE	NUMBER OF CLASSROOMS
605	Tools for Toil	9
610	Giving and Following Directions	16
611	Skill Schemes	14
709	Doing Your Thing	12
805	Reading, Writing and Numbering	15
811	Look to Learning	14
3026	Typing Correct Business Letters from Shorthand Dictation	7
3768	Instructional Unit in Composition of Business Letters	14

1. Learners

Table II presents demographic information on the learners that were exposed to the career education units in the field test. A total of approximately 5,000 learners were exposed to the 14 curriculum units throughout the state. From Table II it can be noted that the learners' demographic characteristics represented the state fairly well. There was approximately a 50/50 split on male-female learners. The ethnic composition included slightly more minority representatives than the state population. The equivalent state figures are 20% Spanish, 70% Anglo, 4% Negro, 6% Indian.

Out of the students tested, 1,955 were representative of the minority backgrounds [1,134 (23%) Spanish Surname, 328 (7%) Negro, 470 (9%) American Indian, 23 classified as other], and the remaining 3,003 (61%) were Anglo.

TABLE II

ALL UNITS

NUMBER OF LEARNERS EXPOSED BY
SELECTED DEMOGRAPHIC CHARACTERISTICS

	SEX		ETHNIC COMPOSITION					
PROJECT	MALE	FEMALE	AMERICAN INDIAN	NEGRO	SPANISH SURNAME	ANGLO WHITE	OTHER	TOTAL NUMBER
Coconino	318	325	226 (35%)	3 (0%)	138 (22%)	276 (43%)	0	643
DICE	55	83	3 (2)	4 (2)	14 (10)	114 (83)	3	138
Mesa	466	463	24 (2)	6 (1)	101 (11)	796 (86)	2	929
Pinal	337	390	129 (18)	45 (6)	275 (38)	270 (38)	8	727
Roosevelt	334	345	4 (0)	225 (38)	244 (36)	176 (26)	0	679
Santa Cruz	102	102	0 (0)	2 (1)	124 (61)	71 (35)	7	204
Tri-County	281	325	60 (10)	8 (1)	185 (29)	363 (60)	0	606
WACOP	130	120	2 (1)	1 (0)	11 (4)	236 (94)	0	250
Yavapai	418	364	22 (3)	4 (1)	52 (7)	701 (90)	3	782
Total	2441	2517	470	328	1134	3003	23	4958
Percent	49	51	9	7	23	61		100
State Average			6%	4%	20%	70%		

*Percentages in parentheses.

When the ethnic composition or profile of the various sites in the field test population are examined we find varying patterns. The following table (Table III) exhibits an ethnic profile of each of the project's field test participants in terms of the field test means for each of the ethnic groups.

TABLE III

LEARNER ETHNIC COMPOSITION PROFILE

	American Indian	Negro	Spanish Surname	Anglo White
DICE	-	-	-	+
Mesa	-	-	-	+
WACOP	-	-	-	+
Yavapai	-	-	-	+
Tri-County	0	-	0	0
Coconino	+	-	0	-
Pinal	+	-	+	-
Roosevelt	-	+	+	-
Santa Cruz	-	-	+	-

+ significantly above field test mean.
- significantly below field test mean.
0 no different from field test mean.

From Table III, it can be noted that DICE, Mesa, WACOP and Yavapai were represented at a lower than field test average percentage of American Indian, Negro and Spanish surname learners and a greater than average percent of Anglo students.

Tri-County's ethnic profile was closer to the average of the group with, however, a less than average number of Negro students.

Coconino showed a high profile in Indian students. Pinal showed a greater profile of Indian and Spanish rather than Negro and Anglo learners. On the other hand Roosevelt exhibited a higher profile of Spanish and Negro than Indian and Anglo learners. Santa Cruz had a greater profile of Spanish learners with lower than average Indian, Negro and Anglo populations.

The diversity of profiles throughout the field test augurs well for learners' ethnic representation in the field test. This diversity can also assist other Arizona districts contemplating the use of the field tested career education units in implementation. Administrators from other districts could subject their district to the same technique of ethnic profiling as employed in this report, and by examining the various units' success in similarly profiled projects, could list priorities of unit implementation. This will be discussed further in the section on unit effectiveness.

2. Teachers

Table IV presents the total number and selected demographic characteristics of the teachers participating in the field test.

It can be noted from Table IV that there were more than twice as many female teachers presenting the units

All UNITS

TABLE IV

NUMBER OF INSTRUCTORS BY SELECTED DEMOGRAPHIC CHARACTERISTICS

	SEX		YRS. OF EXPERIENCE					CAREER EDUCATION EXPERIENCE				
PROJECT	MALE	FEMALE	LESS THAN 1	1-5	6-10	11-15	MORE THAN 15 YRS.	DEV'D. C. ED. UNIT OR PROGRAM	TAUGHT A C. ED. UNIT OR PROGRAM	READ A C. ED. UNIT OR PROGRAM	FAMILIAR WITH CAREER ED.	HAD NO EXPOS. TO C. ED.
Coconino	9	16	5	6	6	5	3	4	10	0	4	7
DICE	2	4	0	3	3	0	0	0	2	2	1	1
Mesa	12	14	2	9	7	4	4	3	5	7	8	3
Pinal	5	21	4	7	7	5	3	3	3	4	15	1
Roosevelt	4	18	2	4	7	6	3	6	8	0	6	2
Santa Cruz	2	6	0	7	0	1	0	6	0	0	2	0
Tri-County	6	14	2	7	6	1	4	7	3	2	8	0
WACOP	2	7	0	5	1	2	1	4	4	0	1	0
Yavapai	12	20	2	10	11	5	4	4	6	1	19	2
Total	54	120	17	58	48	29	22	37	41	16	64	16
Percent	31	69	10	33	28	17	13	21	24	9	37	9

as male teachers. This is probably best explained by the fact that 12 out of the 14 units were elementary units. The median number of years of teaching experience fell between 6-10 years.

The teachers that presented the units in the field test appear fairly sophisticated concerning career education. Of the 174 teachers, 158 were familiar with career education, and of the 158, 41 previously taught a career education unit or program, and 37 had experience in developing a career education unit or program.

ATTITUDINAL DATA

1. Teacher Attitude

Included in each UNIVAL (Unit Evaluation Instrument) was an Instructor Attitudinal Data sheet which included two questions concerning attitudes toward career education in general, and 3 questions concerning the teacher's attitude toward the specific unit (see Appendix I).

a. Teacher Attitude Toward Career Education

When we examine the teacher's general attitude toward career education (Table V) we find that the mean response across questions, units, and projects was 3.91, on a scale where 5 is the highest possible

TABLE V

ALL UNITS

TEACHER ATTITUDE TOWARD CAREER EDUCATION
(Number, Percent and Mean of Instructor Responses to Items 1 and 2 Combined)

PROJECT	STRONGLY POSITIVE		POSITIVE		NO OPINION		NEGATIVE		STRONGLY NEGATIVE		MEAN
	N	%	N	%	N	%	N	%	N	%	
Coconino	14	28	22	44	9	18	3	6	2	4	3.86
DICE	2	17	10	83	0	0	0	0	0	0	4.17
Mesa	6	12	37	71	5	10	4	8	0	0	3.87
Pinal	12	23	31	60	5	10	4	8	0	0	3.98
Roosevelt	13	30	18	41	12	27	1	2	0	0	3.98
Santa Cruz	3	19	10	62	3	19	0	0	0	0	4.00
Tri-County	7	17	23	57	7	17	3	7	0	0	3.85
WACOP	6	33	11	61	1	6	0	0	0	0	4.28
Yavapai	6	9	42	66	12	19	3	5	1	2	3.77
Total	69	20	204	59	54	16	18	5	3	1	3.91

positive response. Of the 348 possible responses 78% (273) were positive towards career education, 16% (54) were of no opinion, and only 6% (21) were negative. There was little variability across projects.

b. Teacher Attitude Toward the Units

Table VI summarizes the teacher attitudes toward the units in the field test.

The overall response to the units was a moderately positive 3.51. Of the possible 522 responses, 67% (351) were positive, 8% (41) were of no opinion, and 25% (130) were negative.

Teachers that had a high positive attitude toward career education appeared also to favor the units as reflected by Pearson's Product Moment coefficient correlation of ($r = 0.95$) significant at and beyond the $\alpha = 0.01$ level (Table VII).

A preliminary examination of teacher comments and panel review inquiries reveals excessive length to be the most common and most severe criticism the units encountered. Thinking this observation to reflect a fundamental trend we correlated unit length (estimated teaching time) with teacher attitudes toward specific units.

The results were highly significant. The findings demonstrate that as a unit's length increases, the mean teacher attitudes toward the unit drop off

TABLE VI

ALL UNITS

TEACHER ATTITUDE TOWARD THE UNITS
(Number, Percent and Mean of Instructor Responses
To Items 3, 4 and 5 Combined)

PROJECT	STRONGLY POSITIVE		POSITIVE		NO OPINION		NEGATIVE		STRONGLY NEGATIVE		MEAN
	N	%	N	%	N	%	N	%	N	%	
Coconino	5	7	35	47	1	1	25	33	9	12	3.03
DICE	3	17	7	39	4	22	4	22	0	0	3.50
Mesa	13	17	41	53	4	5	19	24	1	1	3.59
Pinal	8	10	51	65	6	8	9	12	4	5	3.64
Roosevelt	12	18	25	38	12	18	12	18	5	8	3.41
Santa Cruz	1	4	15	62	0	0	8	33	0	0	3.37
Tri-County	14	23	35	58	1	2	10	17	0	0	3.88
WACOP	5	19	20	74	1	4	1	4	0	0	4.07
Yavapai	10	10	51	53	12	12	18	17	5	5	3.45
Total	71	14	280	54	41	8	106	20	24	5	3.51

TABLE VII ALL UNITS

MEAN TEACHER ATTITUDE TOWARD CAREER EDUCATION BY MEAN TEACHER ATTITUDE TOWARD THE UNITS

UNIT	TEACHER CAREER EDUCATION ATTITUDE	TEACHER UNIT ATTITUDE
107	3.79	3.40
111	3.62	3.08
210	4.09	3.91
211	3.96	3.61
310	4.19	3.56
311	3.90	3.00
605	3.33	3.56
610	4.06	4.08
611	4.07	3.81
709	3.71	3.14
805	4.17	3.58
811	3.75	3.48
3026	4.07	3.86
3768	3.93	3.10

CORRELATION COEFFICIENT: $r = 0.95$

sharply. This gives a correlation coefficient ($r = -0.83$) significant at and beyond 0.01 (Table VIII).

c. Teacher Attitude and Experience

When instructor experience is examined in relation to instructor attitude toward units, we find no significant differences in attitude for differing levels of instructor experience (Table IX).

Apparently teacher experience is not related to attitude toward the unit and administrators need not limit the distribution of career education units to instructors in a particular experience group.

2. Learner Attitude

When learner attitude toward the unit is examined, (Table X), we see a fairly high positive feeling toward all units across all projects. Sixty-three percent of the 31,398 student responses were positive toward the unit, 25% no opinion, and 12% were negative toward the units.

When the relationship between teacher and learner attitudes toward the units were examined (Table XI), it was found that only a slightly positive relationship, as measured by the correlation, existed between the two ($r = 0.26$). An r of 0.46 is required for significance at and beyond the $\alpha = .10$ level. It appears that teacher attitude toward the unit is not related to the student's attitude toward the unit.

TABLE VIII ALL UNITS

Teacher Attitude and Unit Length (Time)

UNIT	UNIT LENGTH (TIME)	TEACHER ATTITUDE
211 Ideas Things to Think About	6 hrs.	3.61
709 Doing Your Thing	20.5	3.14
107 What Do Workers Do	10	3.40
611 Skill Schemes	10	3.81
311 Now and Then	13.2	3.44
605 Tools for Toil	10	3.56
111 Careers Calling	18.5	3.08
210 Developing Your Potential	8	3.91
310 The Future Me	8.75	3.56
811 Look to Learning	11.5	3.48
805 Reading, Writing and Numbering	9.5	3.58
610 Giving and Following Directions	6	4.08
3768 Composition of Business Letters*		3.10
3026 Typing Correct Business Letters*		3.85

CORRELATION COEFFICIENT: $r = -0.83$

*These units are designed to be flexible with freedom to vary length.

TABLE IX

ALL UNITS

INSTRUCTOR ATTITUDE TOWARD UNIT BY INSTRUCTOR EXPERIENCE
MEAN INSTRUCTOR ATTITUDE TOWARD UNIT

	INSTRUCTOR EXPERIENCE											
	LESS THAN 1 YEAR		1 - 5		6 - 10		11 - 15		MORE THAN 15 YEARS		UNIT TOTAL	
UNIT	N	MEAN	N	MEAN	N	MEAN	N	MEAN	N	MEAN	N	MEAN
3026	2	3.25	0	0.00	2	4.50	2	4.00	1	5.00	7	4.07
3768	2	3.00	5	3.20	1	3.00	4	3.16	2	2.83	14	3.09
709	1	3.67	4	3.16	2	3.83	3	2.55	2	3.00	12	3.13
107	1	4.67	4	2.99	6	3.66	3	3.00	0	0.00	14	3.40
805	1	4.00	10	3.37	3	4.00	0	0.00	1	4.00	15	3.58
605	0	0.00	2	3.84	4	4.25	1	1.67	2	3.00	9	3.59
611	5	3.66	3	4.33	0	0.00	3	3.44	3	3.99	14	3.80
610	1	3.67	8	4.17	5	4.07	1	4.00	1	4.00	16	4.08
211	1	2.33	3	3.00	5	3.73	1	4.67	2	4.33	12	3.61
811	1	4.00	7	3.91	3	3.11	3	2.66	0	0.00	14	3.48
310	2	2.66	3	3.89	0	0.00	6	3.66	2	3.83	13	3.58
111	2	3.50	2	3.50	4	4.00	3	4.17	2	2.75	13	3.58
311	1	4.00	3	3.55	4	3.00	2	1.67	0	0.00	10	3.00
210	0	0.00	2	3.33	3	4.56	3	4.00	3	3.67	11	3.89
OVER UNITS	20	3.47	56	3.58	42	3.82	35	3.30	21	3.59	174	3.56

TABLE X ALL UNITS

LEARNER ATTITUDE TOWARDS UNITS
(Number, Percent and Mean of Composite
Learner Attitude Responses)

PROJECT	YES/HAPPY N	%	I DON'T CARE/OK N	%	NO/SAD N	%	MEAN
Coconino	1949	54	796	22	838	24	2.31
DICE	617	67	209	23	98	10	2.56
Mesa	3132	53	1969	33	837	14	2.39
Pinal	3074	66	1159	25	435	9	2.57
Roosevelt	3280	74	703	16	471	10	2.63
Santa Curz	783	55	425	30	219	15	2.40
Tri-County	2767	73	718	19	317	8	2.64
Wacop	946	56	517	31	210	13	2.44
Yavapai	3207	65	1225	25	497	10	2.55
Total	19755	63	7721	25	3922	12	2.50

TABLE XI ALL UNITS

MEAN TEACHER ATTITUDE TOWARD THE UNITS BY
MEAN LEARNER ATTITUDE

UNIT	TEACHER ATTITUDE	LEARNER ATTITUDE
107	3.40	2.70
111	3.08	2.52
210	3.91	2.54
211	3.61	2.38
310	3.56	2.57
311	3.00	2.35
605	3.56	2.76
610	4.08	2.61
611	3.81	2.52
709	3.14	2.58
805	3.58	2.88
811	3.48	2.34
3026	3.86	2.29
3768	3.10	2.07

CORRELATION COEFFICIENT: $r = 0.26$

LEARNER PERFORMANCE

In order to examine the learners' performance on the units, cumulative scores over all the lesson items were examined. Table XII presents the total learner scores in percentages for all the units by each project.

The overall percent of correct scores for all the units by all the projects was a high 80%. There was little variability across projects. This variability appears to be more related to the different units that were field tested rather than dependent on project site.

Examining the relationship between learner attitude and learner performance (Table XIII), it can be noted that a slightly positive relationship exists between the two ($r = 0.26$). This correlation is not significant at the $\alpha = 0.10$ level. Turning to the relationship between teacher attitude toward the unit and learner performance, we find a negative correlation ($r = -0.38$). That means that the more positively disposed the teachers were to the unit the poorer the learners performed. This surprising result gives rise to a number of possible hypotheses. The most probable being that the learner performances across units were fairly high and stable, so that it was difficult to discriminate between the teachers' attitudes toward the unit.

TABLE XII ALL UNITS

NUMBER AND PERCENT OF CORRECT LEARNER RESPONSES
TO THE LESSON IMBEDDED ITEMS OF THE UNITS

PROJECT	NUMBER OF RESPONSES	NUMBER OF CORRECT RESPONSES	PERCENT OF CORRECT RESPONSES
Coconino	4868	3866	79
DICE	1421	1142	80
Mesa	6389	5312	83
Pinal	6761	5374	79
Roosevelt	6060	4796	79
Santa Cruz	1965	1646	84
Tri-County	5626	4383	78
WACOP	1419	1120	79
Yavapai	7080	5692	80
Total	41589	33331	80

TABLE XIII ALL UNITS

MEAN TEACHER ATTITUDE TOWARD THE UNITS AND
MEAN LEARNER ATTITUDE TOWARD THE UNITS BY MEAN LEARNER PERFORMANCE

UNIT	A TEACHER ATT. TO UNIT	B LEARNER ATT. TO UNIT	C LEARNER PERFORMANCE
107	3.40	2.70	80%
111	3.08	2.52	87%
210	3.91	2.54	92%
211	3.61	2.38	77%
310	3.56	2.57	76%
311	3.00	2.35	79%
605	3.56	2.76	84%
610	4.08	2.61	72%
611	3.81	2.52	79%
709	3.14	2.58	86%
805	3.58	2.88	77%
811	3.48	2.34	78%
3026	3.86	2.29	41%
3768	3.10	2.07	82%

CORRELATION COEFFICIENT: $r_{AC} = -0.38$

CORRELATION COEFFICIENT: $r_{BC} = 0.26$

UNIT ANALYSIS

When the major unit measures of effectiveness are examined they reduce to four major factors: Teacher attitude toward the unit, student attitude toward the unit, student performance in the form of lesson imbedded test items, and unit cost of implementation.

1. Unit Effectiveness

The following model was employed to combine the major measures of unit effectiveness to arrive at an overall unit value determination (Fig. 2).

The first three measures gave us a good look at the effectiveness of the unit--in both the cognitive and affective modes. The units were then ranked in relation to this measure of effectiveness.

This effectiveness ranking could be utilized by school district administrators to assist them in choosing units to be implemented in their districts. The prospective users can examine the unit's effectiveness in projects with similar demographic characteristics as his own. In this way he can choose units that have a high probability of successful implementation and local acceptance. To measure overall cost effectiveness (UNIT VALUE),

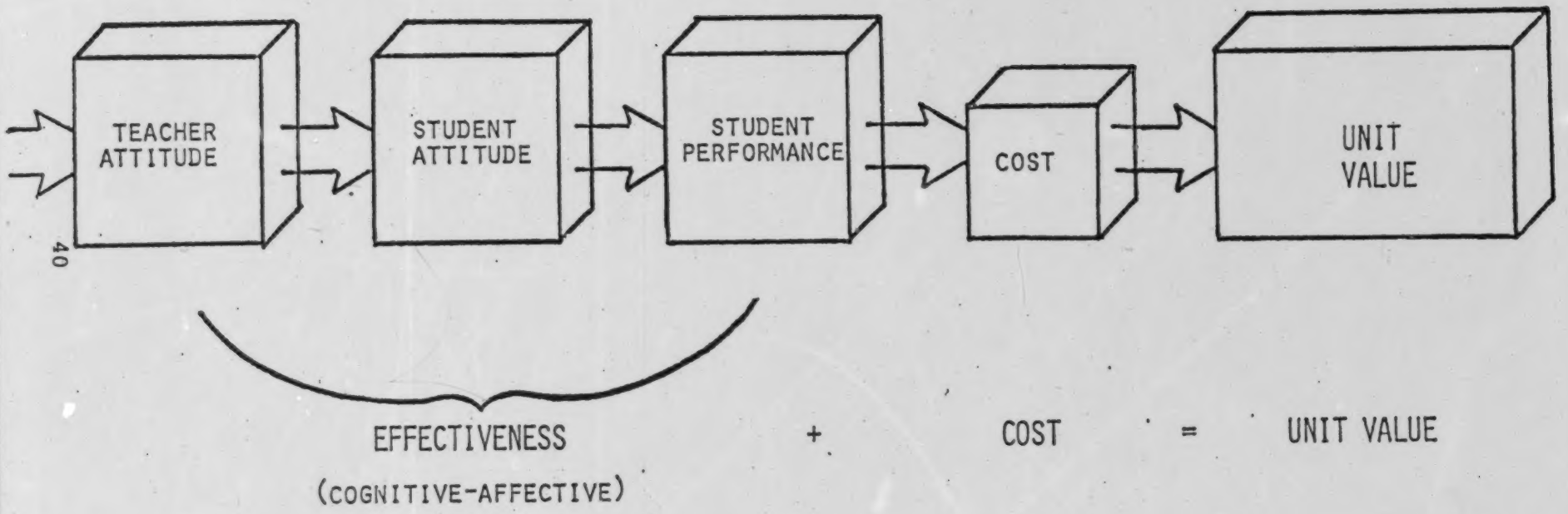


FIGURE 2
UNIT VALUE MODEL

rankings for teacher attitude, student attitude and student performance were given twice the weight as the cost of implementing the unit. The rankings with weights were then combined and re-ranked for overall cost effectiveness. So that a unit with high teacher attitude, high student attitude, successful student performance and low implementation cost would rank high on UNIT VALUE. The overall effectiveness ranking, along with rankings across units for teacher attitude, learner attitude and learner performance are presented in Table XIV.

The fifth grade unit "Developing Your Potential" (210) ranked number 1 out of the 14 units with respect to unit effectiveness. The unit ranked 2, was a kindergarten unit entitled "Tools for Toil" (605). It should be noted that with rankings we lose some information. A unit such as 311, which exhibited the lowest ranking (14) was still a successful unit when one examines the actual scores. The teacher attitude had an average of 3, learner attitude 2.35 and learner performance 79%. At this point some ranking discrepancies can be noted and possibly explained. As an example, Unit 610, a fifth grade unit, showed that the teachers and learners enjoyed the unit (teacher ranked it 1, learners ranked it 4), but the learners did very poorly in the tests. It could be that the test items were difficult or that the unit is an excellent one, but should be delivered to the 6th grade. Another obvious discrepancy shows up with Unit 709 (4th

TABLE XIV ALL UNITS

OVERALL EFFECTIVENESS RANKING BY TEACHER ATTITUDE TOWARD THE UNITS, LEARNER ATTITUDE TOWARD THE UNITS, AND LEARNER PERFORMANCE

UNIT	GRADE LEVEL	RANKING OF TEACHER ATT. TO UNIT	RANKING OF LEARNER ATT. TO UNIT	RANKING OF LEARNER PERFORMANCE	OVERALL EFFECTIVENESS RANKING
210	5	2	7	1	1
605	K	8	2	4	2
610	5	1	4	13	3
805	K	7	1	9	4.5*
107	2	10	3	6	4.5*
611	6	4	8.5*	7	6
709	4	13	5	3	7
111	6	12	8.5*	2	8
310	5	6	6	12	9
211	6	5	10	10	10
3026	10-12	3	13	14	11.5*
3768	7-9	11	14	5	11.5*
811	6	9	12	11	13
314	6	14	11	8	14

*tied ranks

grade), where the learners liked the unit (rank of 5) and did well (rank of 3) but the teachers (rank of 13) did not care for the unit. Further examination of the unit showed that a considerable amount of monitoring and guidance work was required of the teacher in a part of the unit which required the building of a model of a house. The students enjoyed this, the teachers however felt time and work pressures. In general, the rankings give the reader an overall view of the units' success, but for any detailed analysis the individual reports on the units must be read (Vols 2-15).

2. Effectiveness and Ethnic Profile

In an effort to assist future users of the unit, in terms of implementing units with higher probabilities of success within their own district, the following unit effectiveness rankings were computed for the various ethnic profiles represented in the field test (Tables XV through XX).

It must be noted at this time that not all units were tested within all projects. Therefore, a unit may not be ranked within a particular ethnic profile because it was not tested within that specific profile. In that case we have no data concerning that unit's performance within the specific ethnic profile. This is not to say that it would not be successfully implemented in such a district. The data here is presented only as a guide to implementation, and should not be used without examining the specific unit and the associated individual unit report recommendations.

TABLE XV ALL UNITS

DICE, MESA, WACOP, YAVAPAI

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	-	-	-	+

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
610	1	1	9.5	1
210	7	4	2	2
107	2.5	7	5	3
111	4	11	1	4
311	6	8	3	5
709	5	10	4	6
611	8	3	11	7
811	11	6	6	8
805	2.5	13	8	9
3026	10	2	13	10
310	9	12	7	11
211	12	5	12	12
3768	13	9	9.5	13

TABLE XVI ALL UNITS

COCONINO

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	+	-	0	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
210	2	3	1	1
610	3	1	5	2.5
805	1	2	6	2.5
709	4	5	2	4
3768	8	6	3	5
3026	5.5	4	9	6
605	9	7	4	7
111	5.5	8	8	8
311	7	9	7	9

TABLE XVII ALL UNITS

TRI-COUNTY

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	0	-	0	0

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
605	3	2.5	2.5	1
107	2	2.5	4	2
805	1	4.5	5	3
611	4	4.5	2.5	4
111	6	6	1	5.5
610	5	1	7	5.5
811	7	7	6	7

TABLE XVIII ALL UNITS

SANTA CRUZ

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	-	-	+	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
805	1	2	2	1
811	2	1	3	2
310	4	5	1	3
610	3	4	4	4
311	5	3	5	5

TABLE XIX ALL UNITS

PINAL

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	+	-	+	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
605	1	2.5	4	1
210	4	1	3	2
709	2.5	9	2	3
310	5	2.5	8	4
610	2.5	5	9	5
111	8	8	1	6
311	7	6.5	6	7.5
211	6	6.5	7	7.5
3026	10	4	10	9.5
3768	9	10	5	9.5

TABLE XX ALL UNITS

ROOSEVELT

	A.I.	N.	S.S.	A.
ETHNIC PROFILE	-	+	+	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE (SP)	EFFECT. RANK
310	2	1	3	1
610	3	2.5	4	2
211	7	2.5	2	3
3768	8	4	1	4
611	4.5	5	5.5	5.5
805	1	7	7	5.5
709	6	6	5.5	7
107	4.5	8	8	8

COST ANALYSIS

To determine the total cost of implementing the unit and the total cost per student, 14 cost factors were used. Table XXI presents the cost factors with percentages and subtotals for all units in the field test combined. The mean per pupil cost per project was $4.63 and the total cost for implementing all units was approximately $21,000. When the 14 cost factors are examined we find that two factors, teaching time (64%) and teacher planning time (26%), account for 90% of the cost of implementing the unit. In an investigation of the ratio between preparation time and instructional time, it was found that on the average a teacher spends approximately 2 minutes of preparation time for every 5 minutes of classroom instructional time. Wide variations in teachers' behavior were exhibited. Some teachers took much longer than others to complete the same units. In some cases there was considerable variation in the use of materials, field trips and other instructional aids.

Since the majority of the cost of delivering the units can be attributed to the instructor's time, both in preparation and implementation, the bulk of the unit's cost does not represent additional or new costs. Rather the cost is a part of regularly budgeted instructional and classroom

TABLE XXI

ALL UNITS

COST BREAKDOWN FOR ALL UNITS AND PROJECTS COMBINED

COST FACTORS	TOTAL	% OF TOTAL COST	TOTAL COST PER LEARNER
Average Daily Member.	4,538		
Orient. Time	629.55	3	.14
In-service Travel	1.00	0	00
Teacher Plan. Time	5,451.17	26	1.20
Teaching Time	13,481.08	64	2.97
Para-Professional	550.47	3	.12
Instruc. Personnel	19,276.23	92	4.25
Vehicle Oper. Maint.	113.88	.5	.03
Vehicle Oper's Cost	103.06	.5	.02
Total Field Trip Cost	216.94	1	.05
Normal Instruc. Mat.	613.19	3	.14
Resource Mat.	456.31	2	.10
AV Equipment	6.60	0	.00
Add. Cost Items	270.72	1	.06
Total Instr. Mat.	1,399.23	7	.31
Total Pack., Implem.	20,991.87	100.00	4.63
Cost Per Learner Per Project	4.63		

personnel expenses. It should also be emphasized that the career education units were not written exclusive of other curriculum concerns. Career education instructional units merely supplement already existing instructional programs.

Table XXII presents the mean cost per learner of implementing units in the classroom along with their relative cost ranking.

COST EFFECTIVENESS

To determine the cost effectiveness ranking of the units, the rankings for teacher attitude, learner attitude, and learner performance were given a ranking weight of 2, and cost a weight of 1. Since the predominant cost incurred by the units was in the area of teacher time, it was argued that this is a standing cost and as such it was deemed not as important in selecting a unit for implementation as teacher attitude, learner attitude, and learner performance. The cost effectiveness ranking is presented in the final column of Table XXIII. Again, Unit 210 "Developing Your Potential" receives the highest rank with Unit 605 "Tools for Toil" receiving a rank of 2. Unit 311, "Now and Then," again received the lowest rank.

TABLE XXII ALL UNITS

RANKING OF THE MEAN COST PER LEARNER
OF IMPLEMENTING THE UNITS IN THE CLASSROOM

UNIT	COST/LEARNER	RANKING
3768	$ 1.98	1
610	2.57	2
211	3.29	3
3026	3.49	4
605	3.68	5
210	4.37	6
107	4.44	7
811	4.90	8
611	5.11	9
805	5.27	10
310	5.64	11
311	5.97	12
709	6.39	13
111	9.28	14

Mean Cost/Learner $4.63

TABLE XXIII ALL UNITS

OVERALL COST EFFECTIVENESS RANKING BY TEACHER ATTITUDE TOWARD THE UNITS, LEARNER ATTITUDE TOWARD THE UNITS, LEARNER PERFORMANCE AND COST PER LEARNER

UNIT	RANKING OF TEACHER ATT. TO UNIT	RANKING OF LEARNER ATT. TO UNIT	RANKING OF LEARNER PERFORMANCE	RANKING OF COST/ LEARNER	COST EFFECTIVE-NESS RANKING
210	2	7	1	6	1
605	8	2	4	5	2
610	1	4	13	2	3
805	7	1	9	10	4
107	10	3	6	7	5
611	4	8.5*	7	9	6
211	5	10	10	3	7
709	13	5	3	13	8
111	12	8.5*	2	14	9.5*
310	6	6	12	11	9.5*
3768	11	14	5	1	11
3026	3	13	14	4	12
811	9	12	11	8	13
311	14	11	8	12	14

* Units with the same score were given the average of the ranks for those scores.

SUMMARY

1. A total of approximately 5,000 learners were exposed to the units in the nine participating projects. Fifty-one percent of the learners were female, and forty-nine percent male. Sixty-one percent of the learners were Anglo with thirty-nine percent from minority backgrounds.
2. Of the 174 teachers that presented the units 54 were male and 120 were female. The median years of experience was between 6-10 years and 45 had previously taught or developed a career education unit or program.
3. Teacher attitude toward career education was fairly high (3.91 on a scale where 5 was the highest possible response). Of the 348 possible responses, 78% were positive, 16% were of no opinion, and only 6% were negative.
4. Teacher attitude toward the units--the teachers were moderately positive overall toward the units (3.51). Of the possible 522 responses, 67% were positive, 8% were of no opinion and 25% were negative.
5. Teachers that had a high positive attitude toward career education appeared also to favor the units ($r = .95$).

6. Learner attitude was positive toward all units across all projects (2.5 on a scale where 3 was the highest possible response). Sixty-three (63) percent of the 31,398 student responses were positive toward the unit, 25% no opinion, and 12% were negative toward the unit.
7. Learner performance on the unit--the overall percent of correct scores for all the units by all the projects was a high 80%. There was little variation across projects.
8. Measures of unit effectiveness based on teacher attitude toward the unit, learner attitude toward the unit, and learner performance on criterion referenced lesson imbedded items were calculated for each unit. A ranking of the units in terms of unit effectiveness is presented in the report.
9. Student demographic data from the field test site were subjected to an ethnic profile. The units' effectiveness were re-ranked in relation to ethnic profile, so that districts with comparable ethnic profiles could use the information for implementation decisions.
10. Cost analysis--four cost factors were examined for each of the units. Two cost factors, teacher time and teacher planning time, account for 90% of the cost of implementing the unit. The mean per pupil cost per project was $4.63.

11. Unit effectiveness rankings (with double weight) and cost rankings (with single weight) were combined in order to re-rank the units in terms of a cost effectiveness measure called unit value. Rankings for each unit for unit value are presented in the report.

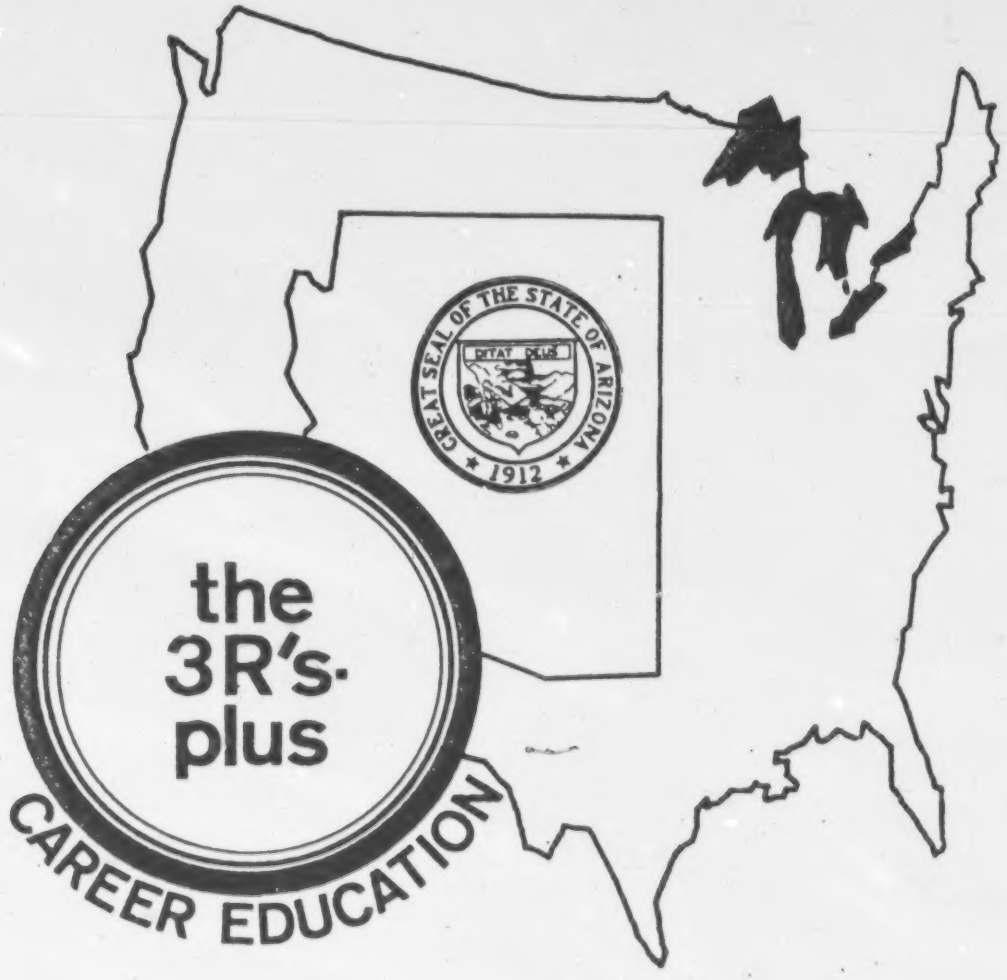
RECOMMENDATIONS

1. All 14 units which were field tested are satisfactory enough to be included in the 1974-75 statewide implementation program.
2. It is recommened that an attachment containing suggestions for refinements, listed in the individual unit reports, be attached to the appropriate units for use by the implementation teachers.

APPENDIX I

UNIVAL

FIELD TEST INSTRUMENT PACKAGE



Unit Evaluation
UNIVAL

INTRODUCTION

This instrument is designed to gather information which will be used to help refine Career Education Curriculum Units. As the instructor, you are the most qualified individual to provide this information. It is important that while completing the instrument, you are as specific as possible in suggesting improvements for the unit. Also, it is imperative that you teach the unit as it is so that the revision data obtained is consistently referring to the same unit and not one that is modified.

Read over the entire instrument as soon as you receive it. Please complete Part I prior to teaching the unit. Parts II and III should be completed as you teach the unit, thus alleviating the problems in recalling what actually took place. Part IV should be completed when you finish teaching the unit.

If you need any assistance in the completion of the instrument, please call your field test coordinator.

Again, thank you for your part in this cooperative effort of developing a Career Education Program.

PART I

Descriptive Data

Please Print:

Instructor_____ School_____

Unit title_____ District_____

Grade level_____ Project_____

Date unit introduced in the classroom____/____/____
Mo. Day Year

Date unit completed____/____/____
Mo. Day Year

Students: (*The numbers should agree.)

*Total number of students exposed to the unit _____

*Number of students of each sex: a. Male_____ b. Female_____

*Number of students in each ethnic group:

a. American Indian_____ d. Anglo White_____
b. Black_____ e. Other_____
c. Spanish Surname_____

Teachers:

How many years have you worked in the field of education?

a. less than one
b. 1-5 years
c. 6-10 years
d. 11-15 years
e. more than 15 years

Which one of the following would best describe your exposure to Career Education (to date). I have

a. developed a Career Education Unit or program.
b. taught a Career Education Unit or program.
c. read a Career Education Unit or program.
d. had some exposure to Career Education.
e. had no exposure to Career Education.

What is your sex?

a. Male b. Female

PART II

Learner Performance Data

Directions: Please provide an indication of how well the lesson delivered the performance objectives. List each lesson number under the column indicated. If more than one item or method of evaluation was used for a lesson, please use separate lines to record the information. If the test items were used (e.g. multiple choice, essay, true-false, completion items or interview items) place a check mark under test item. If a checklist was used, place a check mark under the column headed "Checklist." If no formal procedures were used to evaluate the learners, place a check mark under the column "Instructor Judgment." Indicate the total number of learners responding. Then record the number that responded correctly. Complete this form as you teach each lesson of the unit.

SAMPLE

	Method of Evaluation			Number of Learners	
Lesson Number	Test Item	Checklist	Instructor Judgment	Responding	Responding Correctly
(example) 1	#1 ✓			28	26
1	#2 ✓			28	23
2		#1 ✓		28	28
2	#2 ✓			28	27
3			✓	27	24
4		#1 ✓		28	28
4			#2 ✓	26	26
5			✓	28	27

PART II (Continued)

Lesson Number	Method of Evaluation			Number of Learners	
	Test Item	Checklist	Instructor Judgment	Responding	Responding Correctly

PART III

Cost Analysis Data

Inservice Training

Indicate the amount of time you spent in workshops, orientations and training sessions preparing to teach this unit. (Include travel time if done during your regular school day. This item is not to include the Career Education Workshops held by your Field Test Coordinator during which the UNIVAL instrument was explained.)

Date____/____/____ Minutes involved_____
Mo. Day Year

Date____/____/____ Minutes involved_____
Mo. Day Year

Date____/____/____ Minutes involved_____
Mo. Day Year

Field Trips

A. Destination_____ Date_____

Departure time_____ Return time_____

Mode of transportation_____ Round trip mileage_____

B. Destination_____ Date_____

Departure time_____ Return time_____

Mode of transportation_____ Round trip mileage_____

Additional Cost Items

If you personally purchased any items to teach this unit, please list the item and the cost of the item. Such items may be marking pens, folders, wheat paste, books or any item essential to the lessons that you personally paid for.

Item_____ Cost_____

Item_____ Cost_____

Item_____ Cost_____

Item_____ Cost_____

PART III (Continued)

Classroom Instruction Costs

On this page enter information regarding actual instructional and planning time. Please record the information carefully, in chronological order as the unit is taught in your classroom. If any resource materials were used besides those that are contained as part of this unit, please list them (i.e., multi-media equipment, books, magazines, globes and other classroom equipment, etc.). These resources may have been ordered and/or purchased by your district. You need not include thermofax or duplicating machines since it is assumed these will be used for most lessons.

Lesson Number	Date	Planning Time in Minutes	Teaching Time in Minutes	Para-Professional Time in Minutes	Resource Medium	Resource Title (if applicable)	Resource Cost (if known)
EXAMPLE 1	10/14	15	35	15	filmstrip/ projector	Our Community Helpers Bell & Howell	$17.50
All Lessons					thermofax machine; duplicating machine		

PART IV

Instructor Attitudinal Data

Directions: Read each statement and place a check in the box under the heading that describes your response.

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1. Classes in my subject grade level would be more meaningful and relevant if focused around Career Education objectives.					
2. Career Education is just another fad that will soon be forgotten.					
3. After minimal revisions this unit will be ready for statewide distribution.					
4. The learning activities were very effective in helping meet the performance stated.					
5. The content of the unit relates directly to my regular class program.					

Indicate below any further comments concerning the strengths or weaknesses of the unit.

PART IV (Continued)

Learner Attitudinal Data

On the following page is an attitudinal survey which we would like your learners to respond to. Please remove that page from this instrument and reproduce enough copies for each of your learners. We feel that it would be best if your learners responded to this survey at the completion of the unit. If your learners do not have the needed reading ability to complete the survey, please read and explain the items to them. After the learners have completed the survey, please tally their responses and record the total number of learners responding in each manner of the form provided below.

	YES	I DON'T CARE	NO
1.			
2.			
3.			
4.			

	HAPPY	OK	SAD
5.			
6.			
7.			

_____
Learner's Name

LEARNER UNIT ATTITUDINAL FORM

Directions: Place a large "X" on the face which best shows how you feel.

	YES	I DON'T CARE	NO
1. Would you want to know more about what we have learned in these lessons?			
2. Do you know more now about these lessons than before?			
3. Were the lessons interesting to you?			
4. Do you think that next year's class should be given these lessons?			
	HAPPY	OK	SAD
5. How did you feel about the lessons?			
6. How did most of your other classmates feel about the lessons?			
7. How did your teacher feel about the lessons?			